

IIIRD INTERNATIONAL MEETING ON HIGH PRESSURE BIOLOGY

A. Cellular and Molecular Biology - 21 June 1992

Overview Presentation - Cellular Responses to Pressure, Robert E. Marquis, University of Rochester, NY, USA

1. Pressure inactivation of bacteria, W. Scigalla & H. Ludwig, Universität Heidelberg, Germany.
2. Pressure induced disruption of the cytoskeleton and the protein synthesizing machinery, A. M. Zimmerman & A. Symington, University of Toronto, Canada.
3. Human osteosarcoma cells alter cytoskeletal and adhesion proteins in response to physiological levels of hydrostatic pressure, C. Haskin, I. Cameron & K. Athanasiou, University of Texas Health Sciences Center, San Antonio, TX, USA.
4. Effect of mild pressure on the erythrocyte membrane, S. Yedgar, D. Halle & S. Chen, Hadassah Medical School, Jerusalem, Israel.
5. Effects of elevated pressure on inert and narcotic gases on basal and stimulated free cytosolic calcium levels ($[Ca^{2+}]_i$) of human platelets, R. B. Philp, University of Western Ontario, London, Canada.
6. Decompression-inducible platelet aggregation (DIPA), M. Murayama, National Institute of Arthritis and Metabolic Diseases, Bethesda, MD, USA.
7. Quantal analysis of synaptic currents at high pressure, H. Golan, J. C. Colton, H. J. Moore and Y. Grossman, University of Negev, Israel & Naval Medical Research Institute, Bethesda, MD, USA.
8. Effects of high pressure and local anesthetics on phosphoinositide turnover in endothelial cell culture, L. B. Buravkova, Institute of Biomedical Problems, Moscow.

9. Hyperbaric superfusion experiments using synaptosomes prepared from deep frozen brain, H. J. Moore, K. Miller, Y. Grossman & J. S. Colton, Naval Medical Research Institute, Bethesda, MD, USA.

10. Hyperbaric superfusion of synaptosomes using heliox saturated solutions, H. J. Moore, J. S. Colton, Y. Grossman & G. Imbert, Naval Medical Research Institute, Bethesda, MD, USA.

Overview Presentation - Molecular Responses to Pressure, Karel Heremans, Katholieke Universiteit te Leuven, Belgium

1. Pressure dissociation of a native dimer to a molten globule monomer, J. L. Silva, C. F. Silveira & L. Pontes, Universidade Federal do Rio de Janeiro, Brazil.

2. Pressure-induced reversible changes in secondary structure of ribonuclease A: FT-IR spectroscopic study, Y. Taniguchi & N. Takeda, Ritsumeikan University, Kyoto, Japan.

3. Pressure induced salt-bridge rupture and aggregate dissociation of homopolypeptides, A. A. Ismail & P. T. T. Wong, Steacie Institute for Molecular Sciences, Ottawa, Canada.

4. The use of high pressure spectroscopy to determine the perturbations of lipid membranes caused by cholesterol, S. F. Scarlata, SUNY Stony Brook, NY, USA.

5. Physico-chemical state of the cell membranes after effect of increased pressure of the medium, V. B. Kostkin, A. D. Antipov, V. A. Tyurin and I. T. Demchenko, Russian Academy of Sciences, St. Petersburg.

6. Monoamine oxidase (MAO) activity of mitochondria from the liver of mice and sea-living mollusc at an elevated pressure of the medium, A. D. Antipov, Russian Academy of Sciences, St. Petersburg.

7. T,p-dependence of nucleosidetriphosphate-dissociation and hydrolysis studied by P-31 NMR, E. Leibrock, P. Bayer & H-D. Lüdemann, Universität Regensburg, Germany.

8. Enhanced production of superoxide radicals due to inert gases, S. R. Thom. University of Pennsylvania, Philadelphia, PA, USA.

B. Pressure Effects on Animals and Animal Systems - 22 June 1992

Overview - Pressure Effects on the Nervous Systems of Animals, J. C. Rostain, CNRS - URA, Faculté de Médecin Nord, Marseille, France

1. High pressure effects on modulation of mammalian spinal monosynaptic reflex, D. Schleifstein-Attias, A. Tarasiuk & Y. Grossman, University of the Negev, Israel.
2. Effects of 5 MPa heliox pressure and anaesthesia on dopaminergic pathway: An in vivo neurochemical and receptor study, J. J. Risso & M. Requin, CERB, Toulon, France.
3. Diazepinic drug effect on the high pressure nervous syndrome in mice, B. N. Pavlov, L. B. Buravkova, M. L. Rudakovsky, N. A. Kemenova, V. A. Dmitriev & S. E. Plaksin, Institute of Biomedical Problems, Moscow.
4. Mice and monkeys deep dives in heliox -hydrox and hydreliox gas mixtures - synthesis of Comex "Hydra" programme. B. Gardette & C. Gortan, Comex Hyperbaric Centre, Marseille, France.
5. Species dependency of a partial agonist at the GABA/benzodiazepine receptor against the high pressure neurological syndrome (HPNS). P. C. Pearce, M. J. Halsey, C. J. Maclean, G. Tindley and E. M. Ward, Clinical Research Centre, Harrow, UK.
6. Effect of hyperbaric oxygen and cervical sympathectomy upon rat brain, H. Urayama, Y. Watanabe & J. H. Jacobson II, Kanazawa University School of Medicine, Kanazawa, Japan and The Mount Sinai Medical Center, New York, NY, USA.
7. Nitrogen narcosis and HPNS in the rabbits. The physiological and pharmacological analysis, G. L. Zaltsman & A. Yu. Sledkov, Russian Ministry of Public Health, St. Petersburg.
8. Neurophysiological studies in *Macaca fascicularis* during exposures with hydrogenated mixture up to 1200 MSW, J. C. Rostain, M. C. Gardette-Chauffour & B. Gardette, CNRS - URA, Faculté de Médecin Nord, Marseille, France.

9. Cerebral blood flow and HPNS of monkeys during heliox and trimix compression, I. T. Demchenko, V. B. Kostkin, E. E. Feygman, Y. Yu. Zhylayev, A. K. Dobrilko, D. N. Atochin & M. N. Shilina. Russian Academy of Sciences, St. Petersburg.

10. Pathogenic mechanisms of cerebral decompression sickness (DCS):
1. Brain vascular reactions to hyperbaric conditions (HC), A. B. Korolev, Institute for Biomedical Problems, Moscow.

11. Adaptive ganglioside effect on mouse motor activity under charged gas environment, N. N. Nalivaeva, A. N. Vetosh, T. V. Sokolova & I. T. Demchenko, Russian Academy of Sciences, St. Petersburg.

12. Inhibition of activity of rabbits visual cortex neurons during hyperoxia, A. I. Selivra, Russian Academy of Sciences, St. Petersburg.

13. Long-term potentiation of CA1 pyramidal cell responses is blocked under high pressure of helium, F. Zinebi, M. L. Sadad, J. C. Rostain & M. Hilali, CNRS - URA, Faculté de Médecin Nord, Marseille, France & Faculté Sidi Mohamed Ben Abdellah, Fez, Morroco.

Overview - Pressure Effects on Non-nervous systems of Animals,
A. G. Macdonald, Division of Biomedical Sciences,
University of Aberdeen, UK.

1. Regulation of ventilation in hyperbaric environments: Effects of gas and pressure, P. Giry, J. H. Calvet, P. Cosson & A. Bouaicha, Institute of Naval Medicine, Toulon-Naval, France.

2. Human cardiovascular reflexes at 360 & 450 MSW in trimix, F. Bowser-Riley, M. Cornish, J. Farquhar, R. Hainsworth and C. Kidd, University of Aberdeen & University of Leeds, UK.

C. Applications of Pressure Biology - 23 June 1992

Overview - Applied Research and Development, John Claybaugh,
Tripler Army Medical Center, Hawaii, USA.

1. Latency changes in human brainstem auditory evoked potentials (BAEP) correlated with vestibular and motor HPNS and time-dependent acclimation, J. Lorenz, G. Athanassenas, P. Hampe, G. Plath & J. Wenzel, DRL-Institute for Aerospace Medicine, Cologne, Germany.

2. Implications of contribution of cognitive criteria to EEG-THETA generation in deep experimental diving, J. Lorenz, B. Lorenz & M. Helneke, DLR-Institute for Aerospace Medicine, Cologne, Germany.
3. Progress in heliox saturation dive from 33 ATA to 41 ATA and EEG investigation during the compression, J. Tatsuno, K. Ozawa & H. Oiya, National Defense Medical College, Saitana & MSUR Undersea Medical Center, Kanagawa, Japan.
4. Diagnosis and treatment of bends, J. H. Rudell, New York Medical College, Valhalla, NY, USA.
5. Interspecies conversion of tables for decompression from 300 MSW (UDT300). Y. C. Lin, F. Shidara, Y. Taya, Y. Mizushima & M. Mohri, University of Hawaii, Honolulu, USA & Japan Marine Science & Technology Center, Yokosuka, Japan.
6. Mathematical decompression model based on biophysical and physiological laws and its application, I. A. Vojtsekhovich, Institute of Biomedical Problems, Moscow.
7. Blood flow and PO_2 in the brain with breathing gaseous mixture of high density, I. T. Demchenko, D. N. Atochin, & S. Yu Zhylayev, Russian Academy of Sciences, St. Petersburg.
8. The states of mammalia during short term influence of air high pressures (up to 7.1 MPa) imitated conditions of free escape to the surface, A. I. Selivra, V. A. Pojidaev & I. T. Demchenko, Russian Academy of Sciences, St. Petersburg.
9. Phenomenon of hydration of the fat tissue while saturation of the organism with metabolically indifferent gases, B. A. Nessirio, Leningrad Institute of Physicians Improvement.
10. Circadian rhythms in rhesus monkeys under high pressure conditions during helium-oxygen mixture breathing, E. F. Derkachev et al., Russian Academy of Sciences, St. Petersburg.

Overview - Toxic and Beneficial Effects of Oxygen - Stephen R. Thom,
University of Pennsylvania, Philadelphia, PA, USA

1. Biological aspects of the problem of hyperoxia, A. I. Selivra, Russian Academy of Sciences, St. Petersburg.

2. Non invasive assessment of vasoconstrictive effects of hyperoxygenation, D. Mathieu, R. Nevriere & F. Wattel, Hôpital Calmette, Lille, France.
3. Hydroxyl radicals ($\cdot\text{OH}$) in plasma under hyperbaric oxygen exposure, Y. Mano, T. Nakayama, M. Shibayama & M. Kawashima, Tokyo Medical & Dental University and Kawashima Orthopedic Hospital, Ohita, Japan.
4. Pulmonary alveolar-capillary changes in rats exposed to 100% oxygen, J. A. S. Ross, K. J. I. Weir, P. W. Johnston & D. J. Godden, University of Aberdeen, UK.
5. Interrelations between hyperbaric oxygenation and carbon monoxide intoxication in the rat brain in vivo, A. Mayevsky, G. G. Rogatsky, N. Zarchin & S. R. Thom. University of Pennsylvania, Philadelphia, USA.
6. Cerebral amino acids and acute hyperbaric oxygen toxicity, J. Zhang, T. D. Oury, L. Tatro & C. A. Piantadosi, Duke University, Durham, USA.
7. The nitric oxide synthesis inhibitor N-w-nitro-L-arginine decreases mortality and delays seizure onset in mice exposed to hyperbaric oxygen, T. D. Oury, J. D. Crapo & C. A. Piantadosi, Duke University, Durham, USA.
8. A preliminary investigation of the impact of treatment with ambient air at 2 ATA pressure, W. R. Jackson, AMI Presbyterian Hospital, Denver, USA.
9. N_2O killing of *Escherichia coli* is enhanced by cytoplasmic acidification, B. G. Laskaris & R. E. Marquis, University of Rochester, USA.